

# The impact of improved classroom acoustics on autistic students

## A short summary for the community



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This project was part of the School Years Program within Autism CRC. It asked the question: does sound field amplification support primary school students on the autism spectrum in the classroom?

### What is Autism Spectrum Disorder?

Autism Spectrum Disorder (ASD) is a developmental disorder in which individuals show difficulties with social and communication skills, and display a variety of repetitive behaviours.

The behavioural features that characterise autism are often present before three years of age but may first become apparent during the school years or later in life. The signs and/or symptoms of autism can vary widely in nature and may be accompanied by many co-occurring mental and physical health conditions.

### What is sound field amplification?

Sound field amplification (SFA) systems typically consist of a microphone and transmitter worn by the teacher and a receiver and speaker placed in the classroom. When functioning optimally, SFA projects the teacher's voice evenly to all parts of the classroom.

### How could SFA support students on the autism spectrum?

Students can spend up to 60% of the school day listening to their teacher and classmates. They often have to do this in noisy classrooms. SFA could put children in a better position to learn by making it easier to hear the teacher. This could allow some students to transition from struggling to hear to being able to listen.

### Further information

Visit our website or contact the Autism CRC

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## Did SFA support students on the autism spectrum?

Overall, the results of the project support the trialing of SFA in classrooms for students on the autism spectrum. By making it easier for students to hear the teacher, SFA put students in a better position to learn but did not guarantee students will go on to learn in the short-term. The benefits of SFA were realised with no observed risks for students on the spectrum.

### Standardised measures

The short-term use of SFA in classrooms helped students on the autism spectrum. These students improved their ability to manipulate speech sounds (phonological processing) but not their abilities in the areas of attention, memory, literacy or numeracy.

The observed benefits could be due to SFA making it easier for students to clearly and consistently hear the teacher's voice in the classroom.

Longer periods of SFA than the two terms used in this study might be needed to help students on the spectrum to improve their attention, memory, literacy and numeracy. This could be because improving a child's abilities in these areas might require more than just being able to hear the teacher clearly.

### Functional measures

The use of SFA in the classroom supported some but not all functional listening abilities in students including those on the autism spectrum. The abilities supported included focusing on and following verbal instructions, attending to and following directions and class activities, staying on task, answering questions, attending to verbal instruction and understanding when noise is present, and rate of comprehension.

### What does this mean for teachers and students in the classroom?

The results of the project show SFA has the potential to improve classroom performance in students on the autism spectrum. Teachers could consider trialing SFA in their classrooms on a case-by-case basis.

Realistic expectations of the potential benefits of SFA for students on the autism spectrum are needed. It is reasonable to expect that short-term SFA could benefit these students in some areas of phonological processing and functional listening, but not in areas of attention, memory, literacy and numeracy.

Overall, SFA has the potential to put students on the autism spectrum in a better position to learn but does not guarantee those children will immediately improve their learning.

The absence of any overtly negative effects of SFA during the trial suggests the potential for SFA to harm students on the autism spectrum is low.



## Is sound field amplification right for my child's classroom?

Not every classroom will benefit from SFA. In quiet classrooms, students will already be able to hear the teacher and SFA may not be needed. In very noisy classrooms, reducing the noise should take priority as SFA could make the noise worse. The classrooms most likely to benefit are those where some SFA is needed to keep the teacher's voice above background noise across the classroom throughout the school day. There are a number of SFA systems available on the market. Choosing the best one for your child's classroom can warrant consultation with professionals such as audiologists, acoustic engineers, speech pathologists and occupational therapists. While such professionals can bring expertise in hearing, acoustics, and communication into the classroom, the successful application of this expertise can only occur under the leadership of the professional best trained to educate children, the classroom teacher.